

WHAT IS CLAIMED IS:

1. An intravascular assembly for forming a continuous lesion within a chamber of a patient's heart, comprising:

5 a) an elongated delivery member having proximal and distal ends, an inner lumen extending therein to the distal end, a distal section shapeable into a curved configuration having an inner side and an outer side, an elongated opening in the inner side of the curved distal section in communication with the inner lumen and an elongated support element which is fixed along a length of the distal section coextensive with at least part of the elongated opening; and

10 b) an elongated electrophysiological device disposed within the inner lumen of the elongated delivery member, having a distal end secured within the distal end of the elongated delivery member, and having a plurality of emitting electrodes on a distal portion thereof , and which is configured to extend out of the elongated opening along the inner side of the delivery member curved distal section upon relative movement between the delivery member and the elongated EP device, a plurality of electrical conductors having proximal and distal ends with individual electrical conductors being electrically connected

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20 by their distal ends to emitting electrodes on the distal portion of the electrophysiological device and by their proximal ends to an electrical

connector suitable for connection to a source of high frequency electrical energy.

2. The intravascular assembly of claim 1 wherein the distal section of the elongated delivery member is shaped to facilitate entry and positioning within the patient's heart chamber.

3. The intravascular assembly of claim 1 wherein the support element within the distal section is a metallic ribbon.

4. The intravascular assembly of claim 3 wherein the metallic ribbon has a flat surface facing the elongated opening.

5. The intravascular assembly of claim 1 wherein the electrodes on the distal portion of the electrophysiological device are not more than 1.35 mm in diameter.

6. The intravascular assembly of claim 1 including a longitudinally movable sheath disposed about the delivery member to control the length of the elongated opening.

7. The intravascular assembly of claim 6 wherein the outer sheath has a curved distal extremity.

8. The intravascular assembly of claim 1 including a longitudinally movable sheath disposed about the EP device having a proximal end configured to be connected to a source of fluid and a distal end extending over the distal extremity of the EP device.

5 9. The intravascular assembly of claim 1 including a second inner lumen extending within at least the distal section of the elongated delivery member to a discharge port in the distal end of the elongated delivery member.

10. The intravascular assembly of claim 9 wherein the second inner lumen extends from the proximal end of the elongated delivery member to the distal end thereof.

11. The intravascular assembly of claim 1 including a longitudinally movable outer sheath disposed about the intravascular device to control the length of the elongated opening which is exposed.

15 12. The intravascular assembly of claim 1 wherein the elongated
delivery member is provided with at least one electrode on the distal section
thereof.

13. The intravascular assembly of claim 1 wherein the distal section of the elongated delivery member is provided with a lumen for delivery of cooling fluid to the distal end of the assembly.

14. The intravascular assembly of claim 13 wherein the lumen for delivery of the cooling fluid extends to the proximal end of the assembly.

15. The intravascular assembly of claim 3 wherein a multi-arm adapter is provided on the proximal end of the assembly which has an arm with an inner lumen in fluid communication with the lumen for delivery of the cooling fluid.

16. The intravascular assembly of claim 1 including an elongated deflection line secured to the distal end of the delivery member.

17. A method for treating a patient's heart for fibrillation or flutter comprising:

- a) providing a intravascular assembly including an elongated delivery member having proximal and distal ends, an inner lumen extending therein to the distal end, a distal section shapeable to a curved configuration having an inner side and an outer side, an elongated opening in the inner side of the curved distal section in communication with the inner lumen, and an elongated support element which is fixed along a length

of the distal section coextensive with at least part of the elongated opening; and

an elongated electrophysiological device disposed within the inner lumen of the elongated delivery member, having a plurality of emitting electrodes on a distal portion thereof, and which is configured to extend out of the elongated opening along the inner side of the delivery member curved distal section upon relative movement between the delivery member and the elongated electrophysiological device;

b) introducing the intravascular assembly into the patient's vasculature and advancing the assembly therein until the distal portion of the assembly is disposed within a chamber of the patient's heart;

c) effecting relative movement between the electrophysiological device and the delivery member by displacing the electrophysiological device proximally relative to the delivery member so that the distal section of the electrophysiological device extends through the elongated opening in the distal section of the delivery member;

d) contacting the extended distal section of the electrophysiological device with a desired surface of the heart chamber;

e) delivering high frequency electrical energy to at least one electrode on the electrophysiological device to form a first lesion on the surface of the heart chamber; and

5 f) delivering high frequency electrical energy to at least one other electrode on the electrophysiological device to form at least a second lesion on the surface of the heart chamber adjacent to a previously formed lesion thereon.

10 18. The method of claim 17 wherein the electrodes on the electrophysiological device are bathed in cooling fluid when emitting high frequency electrical energy.

15 19. The method of claim 17 wherein an outer sheath is disposed about the intravascular assembly and the longitudinal position of the outer sheath about the intravascular assembly is adjusted to control the length of the elongated opening in the elongated delivery member which in turn controls the curvature of the distal section of the electrophysiological device which extends out of the elongated opening.

20 20. An intravascular assembly for forming a continuous lesion within a chamber of a patient's heart, comprising:

a) an elongated delivery member having proximal and distal ends, an inner lumen extending within at least a section of the delivery

member, a distal section shapeable into a curved configuration having an inner side and an outer side; and

b) an elongated electrophysiological device having a distal end secured to the distal end of the elongated delivery member, and having a distal section shapeable into a curved configuration which is configured to follow the delivery member curved distal section and extend away from the delivery member curved distal section, and having a plurality of emitting electrodes on a distal portion thereof, a plurality of electrical conductors having proximal and distal ends with individual electrical conductors being electrically connected by their distal ends to emitting electrodes on the distal portion of the electrophysiological device and by their proximal ends to an electrical connector suitable for connection to a source of high frequency electrical energy.

21. The intravascular assembly of claim 20 wherein the delivery member distal section is deflectable and including an elongated deflection line secured to the distal end of the delivery member.

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22. An intravascular assembly for forming a continuous lesion within a chamber of a patient's heart, comprising:

a) an elongated delivery member having proximal and distal ends, a lumen extending within at least a section of the delivery

member, a distal section shapeable into a curved configuration having an inner side and an outer side, an elongated depression along one side of the distal section having a proximal end and a distal end, at least one opening in the distal section in communication with the lumen, and an elongated support element which is fixed along a length of the distal section coextensive with at least part of the elongated depression; and

b) an elongated electrophysiological device disposed within the lumen of the elongated delivery member, having a distal end secured within the distal end of the elongated delivery member, and having a plurality of emitting electrodes on a distal portion thereof, and which is configured to extend away from the elongated depression upon relative movement between the delivery member and the elongated electrophysiological device.

15 23. The intravascular assembly of claim 22 wherein the shaft includes a distal opening at the distal end of the elongated depression and a proximal opening at the proximal end of the elongated depression, and wherein the elongated electrophysiology device extends out of the distal and proximal openings.

20 24. The intravascular assembly of claim 22 including a plurality of
electrical conductors having proximal and distal ends with individual electrical

conductors being electrically connected by their distal ends to emitting electrodes on the distal portion of the electrophysiological device and by their proximal ends to an electrical connector suitable for connection to a source of high frequency electrical energy.

5 25. A method for treating a patient's heart for fibrillation or flutter comprising:

a) providing an intravascular assembly including

an elongated delivery member having proximal and distal ends, an inner lumen extending within at least a section of the delivery member, a distal section shapeable into a curved configuration having an inner side and an outer side; and

an elongated electrophysiological device having a distal end secured to the distal end of the elongated delivery member, and having a distal section shapeable into a curved configuration which is configured to follow the delivery member curved distal section and extend away from the delivery member curved distal section, and having a plurality of emitting electrodes on a distal portion thereof, a plurality of electrical conductors having proximal and distal ends with individual electrical conductors being electrically connected by their distal ends to emitting electrodes on the distal portion of the electrophysiological device and by their proximal ends to an electrical connector

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suitable for connection to a source of high frequency electrical energy;

b) introducing the intravascular assembly into the patient's vasculature and advancing the assembly therein until the distal portion of the assembly is disposed within a chamber of the patient's heart

c) deflecting the distal sections of the delivery member and the electrophysiological device into the curved configuration so that the distal section of the electrophysiological device follows the distal section of the delivery member;

d) effecting relative movement between the electrophysiological device and the delivery member by displacing the electrophysiological device proximally relative to the delivery member so that the distal section of the electrophysiological device extends away from the distal section of the delivery member;

e) contacting the extended distal section of the electrophysiological device with a desired surface of the heart chamber;

f) delivering high frequency electrical energy to at least one electrode on the electrophysiological device to form a first lesion on the surface of the heart chamber; and

g) delivering high frequency electrical energy to at least one other electrode on the electrophysiological device to form at least a

second lesion on the surface of the heart chamber adjacent to a previously formed lesion thereon.

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